

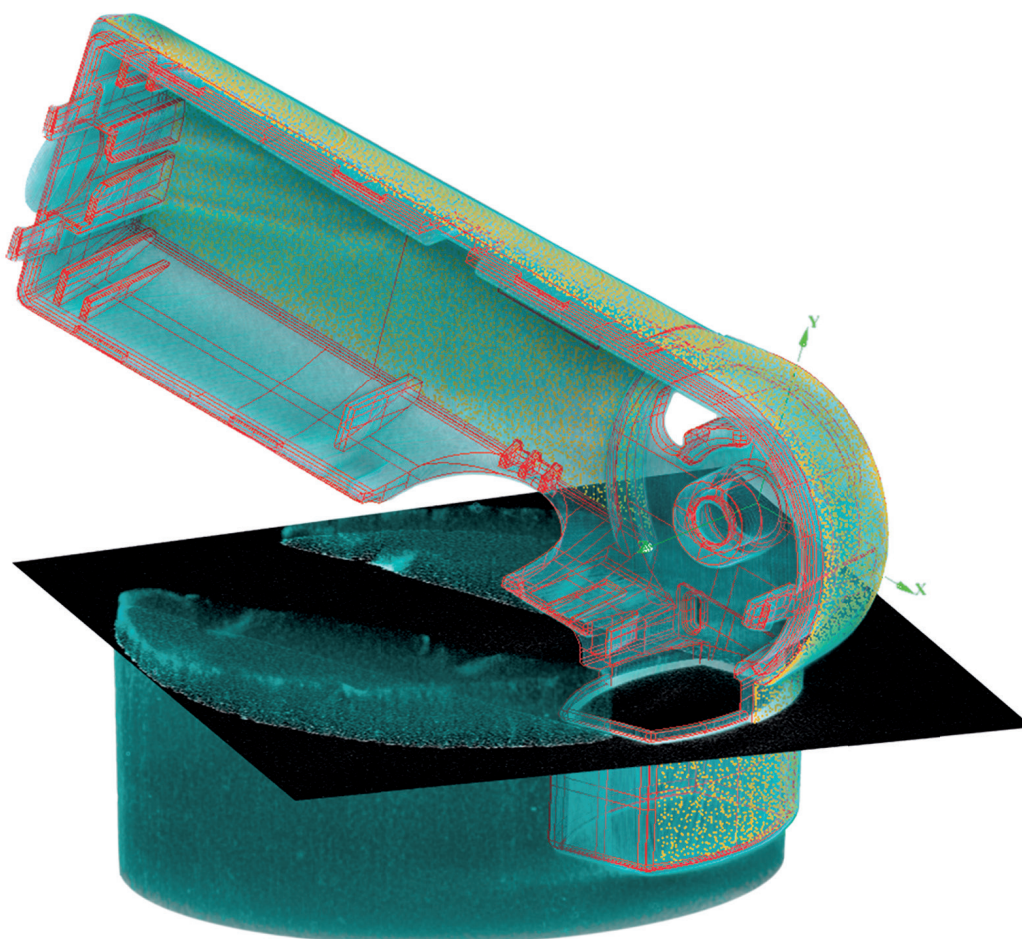
Version Information WinWerth® 8.43 / 9.43

New Features



WINWERTH®

THE 3D MEASUREMENT SOFTWARE FOR ALL TASKS
ON THE SHOPFLOOR AND IN THE LABORATORY



Werth Messtechnik GmbH

Siemensstrasse 19 · 35394 Giessen

Phone: +49 641 7938-0 · Telefax: +49 641 7938-719

mail@werth.de · www.werth.de

WinWerth® version 8.43 (9.43)

Dear customers of Werth Messtechnik GmbH,

We are pleased to announce the new version of our WinWerth® 3D measurement software. It is available as WinWerth® 9.43 for Windows 10 and as WinWerth® 8.43 for Windows 7.

Numerous new functions for fast measurement and editing have been integrated. Calculation operations have been significantly accelerated and 3D CAD functionalities were added. New solutions have been created for the integration and networking of our measuring machines in production lines. Measuring with computed tomography is now possible without expert knowledge.

Have we sparked your interest? Please refer to this version information for a detailed description of the new features.

If you have any questions, please contact our worldwide service centers. Our headquarter can also be contacted either by phone at +49 641 7938-519 or by e-mail at mail@werth.de.


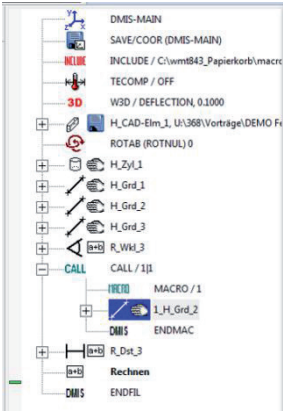
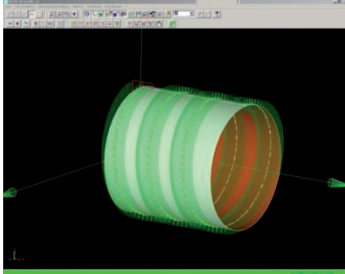
We wish you continued success in working with WinWerth®.

Yours sincerely


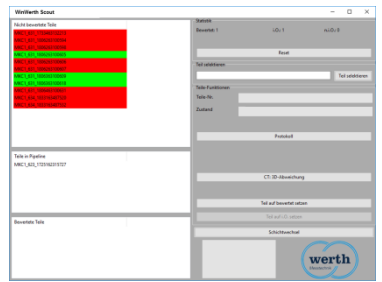
Your team of Werth Messtechnik GmbH


Contents

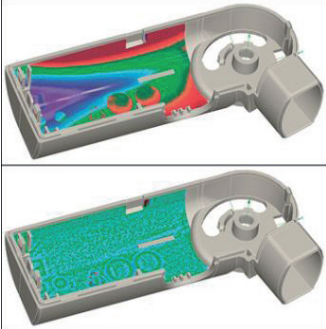

	Page
1. General WinWerth® functions	
WinWerth® Version 9.43	4
Editing of parameter programs	4
Editing subroutines	4
Advanced point distribution modes	4
Acceleration of calculation operations	4
Extended functionality for WinWerth® profile comparison	5
Mirroring measurement sequences using CAD models	5
Enhancement Office Report	5
Extension of WinWerth® GearMeasure	5
Wastebasket function	6
Extension of the calibration program	6
Fully automatic machine operation with barcode reader	6
WinWerth® Scout	6
2. Functions for image processing	
Increased accuracy for Raster Scanning HD ROTARY	7
3. Computed tomography	
WinWerth® TomoAssist	7
Function enhancements for WinWerth® FormCorrect	8
WinWerth® VolumeCheck with extended functionality	8
Sparkovers in OnTheFly mode	9
Hemisphere Y-raster tomography	9

<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>WinWerth® version 9.43</p> <p>WinWerth® is available as version 9.43 for Windows 10 and as version 8.43 for Windows 7.</p>	
<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>Editing of parameter programs</p> <p>The range of commands for TeachEdit processing has been extended.</p> <ul style="list-style-type: none"> Parameter programs can now be edited directly in the feature tree Manually created DMIS formatting such as paragraphs, indents, comment lines, etc. are retained 	
<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>Editing of subroutines</p> <p>Recurring identical partial measurement sequences can be stored in subroutines.</p> <ul style="list-style-type: none"> Subroutines, like the main measuring sequence, can now be edited and saved directly in the feature tree Manually created formatting in DMIS is retained 	
<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>Advanced point distribution modes</p> <p>The point distribution function for interactive automatic measurement of geometry elements is now also available for line sensors and rotary axes.</p> <ul style="list-style-type: none"> Many different strategies can be selected, e.g. for plane: meander, spiral and other methods Measurements with Chromatic Focus Line Sensor CFL are possible on the rotary axis Visualization of the line width for complete scanning (example: helix scan on mandrel) 	 <p><i>Point distribution on cylinder (strategy helix) with visible line width of the sensor</i></p>
<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>Acceleration of calculation operations</p> <p>The execution of the following calculation operations has been significantly accelerated:</p> <ul style="list-style-type: none"> Saving the 3D graphics in the DMIS program Calculation of the point cloud from CT volumes Calculation of actual-actual comparison using the spike filter Calculation of subcontours from an overall point cloud Conversion of point clouds in ASCII format to STL format 	

<p>WinWerth®</p> <p>General Functions (Option)</p> <p>Part of: Rasterscanning HD N and Rasterscanning HD P</p>	<p>Extended functionality for WinWerth® profile comparison</p> <p>Using the WinWerth® profile comparison, a 2D CAD drawing can be superimposed with a video image.</p> <ul style="list-style-type: none"> • Geometric characteristics based on the ISO 16792 standard can now be displayed in addition • The video image can be: <ul style="list-style-type: none"> ○ Live image of the BV sensor ○ Raster image of the BV sensor ○ Intensity image of the Chromatic Focus Line sensor ○ Cross section through the CT volume 																																											
<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>Mirroring measurement sequences using CAD models</p> <p>To measure a symmetrical workpiece or two separate workpieces symmetrical to each other, the measuring sequence can be mirrored on the XZ or YZ plane.</p> <ul style="list-style-type: none"> • For example, evaluation programs of large point clouds with patch selection on the 3D CAD model 																																											
<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>Enhancement Office Report</p> <p>In the Office Report, measured value tables, 2D and 3D graphics, BestFit and ToleranceFit® plots, camera images of the image processing sensor or any other content can be documented.</p> <ul style="list-style-type: none"> • When evaluating form and position deviations, the symbol of the corresponding geometrical characteristic is displayed 	<table border="1"> <thead> <tr> <th>Name</th> <th>Symbol</th> <th>Actual</th> <th>Nominal</th> <th>+ Tol</th> <th>- Tol</th> </tr> </thead> <tbody> <tr> <td>T_6</td> <td>○</td> <td>0.00000</td> <td>0.00000</td> <td>0.00500</td> <td>0.00000</td> </tr> <tr> <td>T_7</td> <td>—</td> <td>0.00000</td> <td>0.00000</td> <td>0.00500</td> <td>0.00000</td> </tr> <tr> <td>T_8</td> <td>∩</td> <td>0.00000</td> <td>0.00000</td> <td>0.00500</td> <td>0.00000</td> </tr> <tr> <td>T_9</td> <td>THETA</td> <td>0.20004</td> <td>0.20004</td> <td>0.00000</td> <td>0.00000</td> </tr> <tr> <td>T_10</td> <td>∩</td> <td>0.00000</td> <td>0.00000</td> <td>0.00500</td> <td>0.00000</td> </tr> <tr> <td>T_11</td> <td>◎</td> <td>0.99255</td> <td>0.00000</td> <td>0.00000</td> <td>0.00000</td> </tr> </tbody> </table>	Name	Symbol	Actual	Nominal	+ Tol	- Tol	T_6	○	0.00000	0.00000	0.00500	0.00000	T_7	—	0.00000	0.00000	0.00500	0.00000	T_8	∩	0.00000	0.00000	0.00500	0.00000	T_9	THETA	0.20004	0.20004	0.00000	0.00000	T_10	∩	0.00000	0.00000	0.00500	0.00000	T_11	◎	0.99255	0.00000	0.00000	0.00000
Name	Symbol	Actual	Nominal	+ Tol	- Tol																																							
T_6	○	0.00000	0.00000	0.00500	0.00000																																							
T_7	—	0.00000	0.00000	0.00500	0.00000																																							
T_8	∩	0.00000	0.00000	0.00500	0.00000																																							
T_9	THETA	0.20004	0.20004	0.00000	0.00000																																							
T_10	∩	0.00000	0.00000	0.00500	0.00000																																							
T_11	◎	0.99255	0.00000	0.00000	0.00000																																							
<p>WinWerth®</p> <p>General Functions (Option)</p> <p>WinWerth® GearMeasure</p>	<p>Extension of WinWerth® GearMeasure</p> <p>WinWerth® GearMeasure was extended by the option adjusted pre-defined scanning for lead, root and tip circle lines.</p> <ul style="list-style-type: none"> • The measuring points are automatically generated by entering the nominal parameters and can be recorded with a wide range of sensors • The evaluation is carried out according to standards, for example according to DIN 3974 																																											

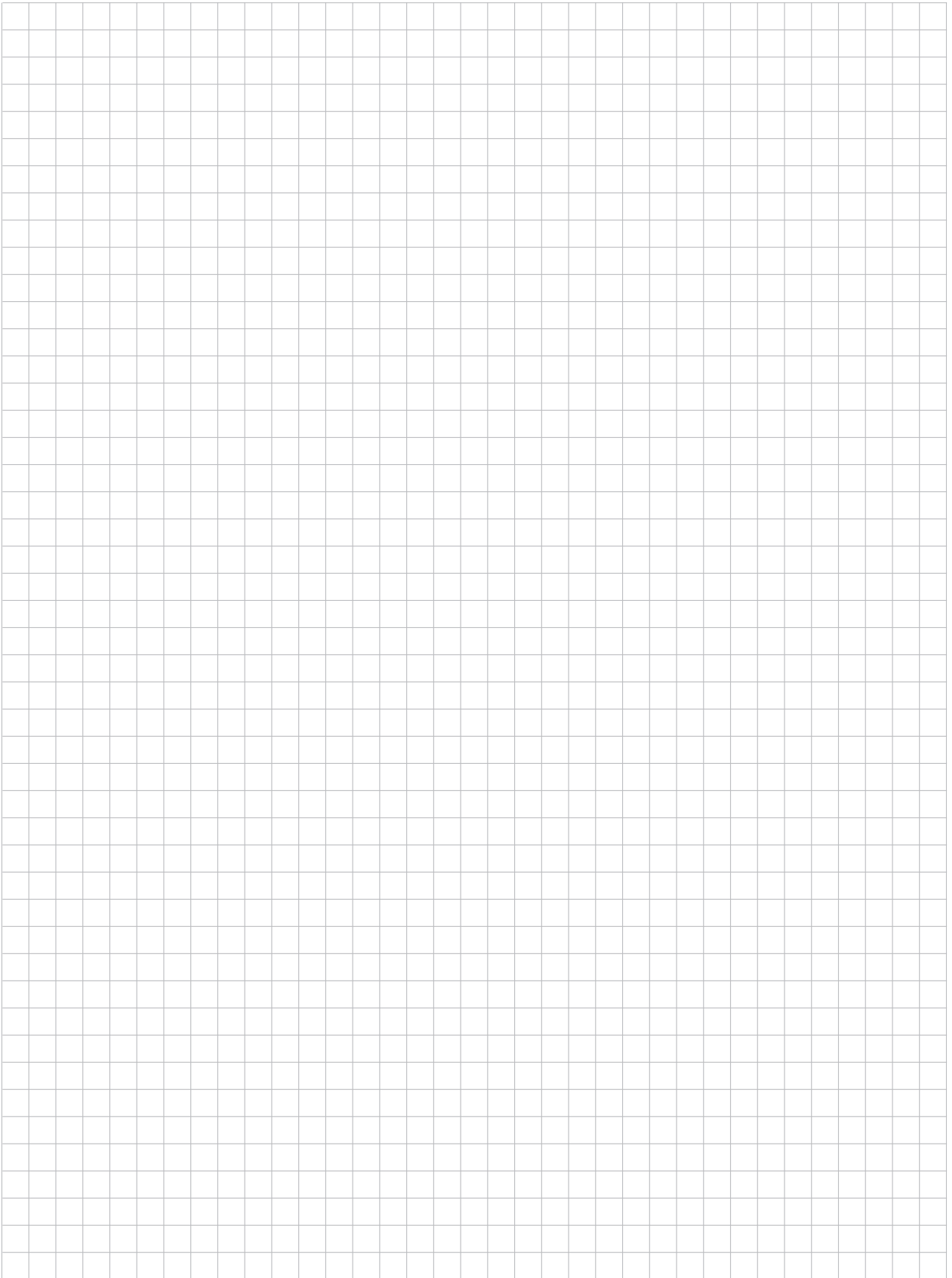
<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>Wastebasket function</p> <p>In order to facilitate the creation and editing of measurement sequences, the wastebasket function has been integrated.</p> <ul style="list-style-type: none"> • The procedure is based on known Microsoft Windows functions • During an editing session, deleted items are moved to the wastebasket and can be restored at any time • Restored objects are inserted at the original position of the feature tree and highlighted • The loop index is added automatically 	
<p>WinWerth®</p> <p>General Functions (Standard)</p>	<p>Extension of the calibration program</p> <p>A routine for calibrating dual-sphere styli with a very thin probe shank for the Werth Fiber Probe® WFP 3D has been added.</p> <ul style="list-style-type: none"> • Optimized travel paths prevent sticking of the sphere 	
<p>WinWerth®</p> <p>General Functions (Option)</p>	<p>Fully automatic machine operation with barcode reader</p> <p>The WinWerth® barcode reader option allows the automatic starting of measuring sequences.</p> <ul style="list-style-type: none"> • After entering the corresponding barcode, the part measuring program starts without pressing the WinWerth® start button 	
<p>WinWerth®</p> <p>General Functions (Option)</p> <p>WinWerth® Scout</p>	<p>WinWerth® Scout</p> <p>Integration and networking in production lines.</p> <ul style="list-style-type: none"> • WinWerth® Scout controls various measuring machines and also enables task sharing, for example between CT and multisensor coordinate measuring machines • Combination of measuring and inspection tasks • Traceability of the results guaranteed throughout due to the integrated software solution • List of measured workpieces can be displayed at all workstations in the network • Data exchange with ERP software • The individual measurement results can be displayed and checked both graphically and in tabular form 	 <p><i>WinWerth® Scout user interface</i></p>

<p>Image Processing (Option) Raster Scanning HD ROTARY</p>	<p>Increased accuracy for Raster Scanning HD ROTARY</p> <p>The measurement accuracy has been increased by an improved algorithm.</p>	
<p>Computed tomography (Option)</p> <p>WinWerth® TomoAssist</p>	<p>WinWerth® TomoAssist</p> <p>With the new software module WinWerth® TomoAssist the operation of TomoScope® and TomoCheck® machines is further simplified.</p> <ul style="list-style-type: none"> • Automatic determination of the optimal CT setup parameters depending on the respective measurement task <ul style="list-style-type: none"> ○ Optimization of: tube power, voltage, hardware filters, exposure time, number of projections ○ Taking into account the workpiece properties such as geometry, orientation and material as well as the required structural resolution based on the critical inspection dimensions ○ Regardless of the experience level, good reproducibility is always achieved with short measurement times • When the precision of the measurement is specified, for example given by the workpiece manufacturing tolerances, the parameters are automatically set to minimize the measurement time <ul style="list-style-type: none"> ○ An estimate of the measurement time is provided ○ The time savings minimize inspection costs • If the measurement time is specified, as is often the case when defined by the manufacturing cycle time, the precision is automatically optimized and the expected value is provided <ul style="list-style-type: none"> ○ Complicated and expensive test measurements can be avoided in this way, and the machine can be put to use efficiently 	 <p>The screenshot shows the TomoAssist software interface with three tabs: 'Parameter Optimization', 'Expert settings', and 'Correction values'. The 'Parameter Optimization' tab is active. It contains several sections: 'Workpiece properties' with an 'Add or change material...' button and a table with columns 'Index', 'Material', and 'Geometry'; 'Target points' with an 'Add' button and a 'Delete' button; 'Structural resolution' with 'Smallest geometry element' set to 0.2000 mm and 'Metrological resolution factor' set to 10; and 'Criterion for optimization' with radio buttons for 'Single point precision' (unchecked) and 'Total exposure time' (checked), with a value of 100 min. At the bottom, there are buttons for 'Calculate', 'Last result', 'Reset', and 'Close'.</p> <p><i>Example user interface TomoAssist</i></p>

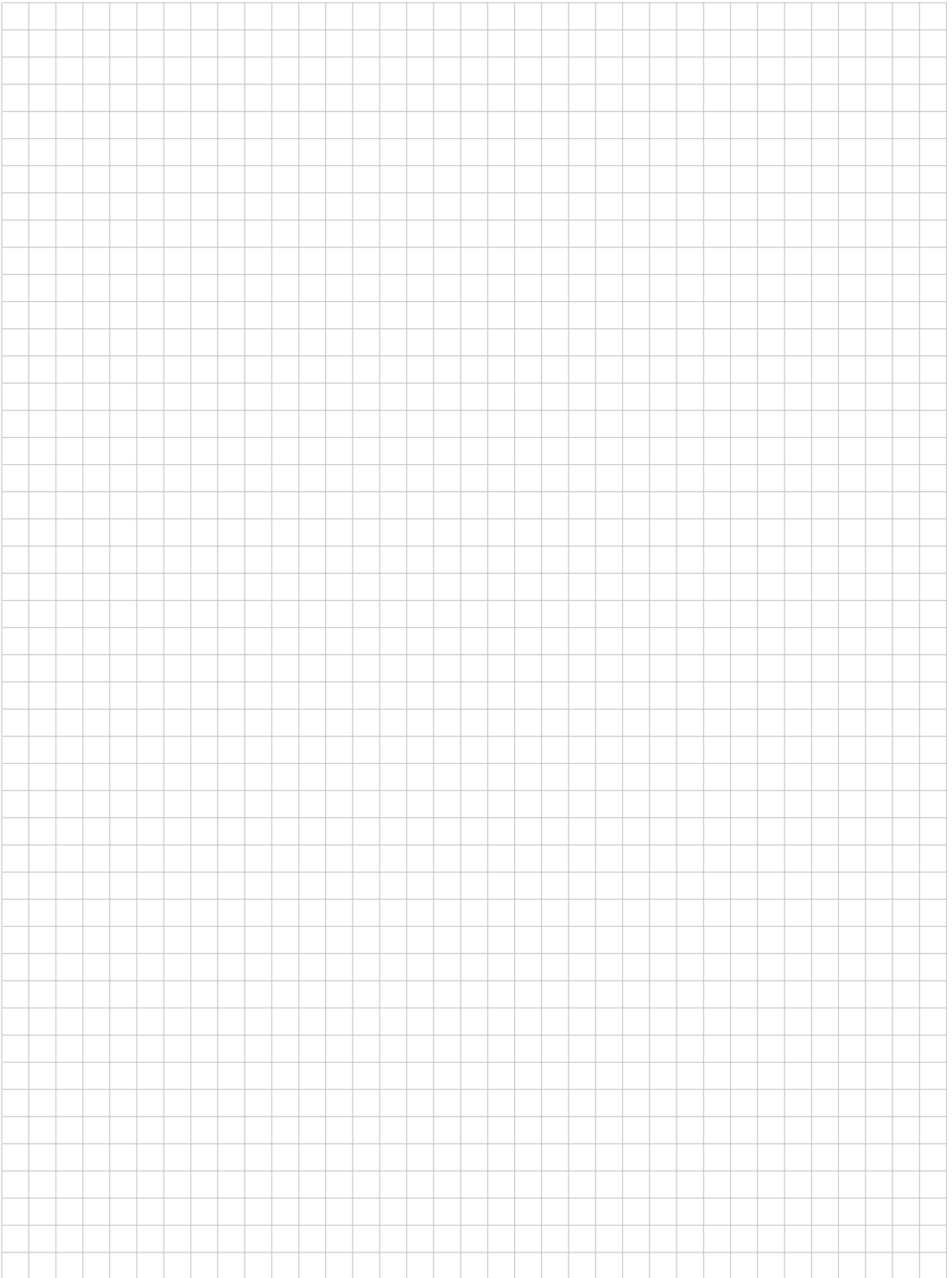
<p>Computed tomography (Option)</p> <p>WinWerth® FormCorrect</p>	<p>Function extensions for WinWerth® FormCorrect</p> <p>WinWerth® FormCorrect enables the correction of plastic injection molding tools or nominal data for 3D printers. The largely automated correction of the CAD model allows product and process optimization, typically in just one loop. Thus development costs can be reduced significantly.</p> <ul style="list-style-type: none"> • Display options have been expanded for greater operator convenience <ul style="list-style-type: none"> ○ Visualization of the measuring points relevant for the correction as well as original and remaining deviations before the correction ○ Visualization of the deviation element • Elements that are not relevant to the function, such as texts and ejector marks can be excluded from correction • By averaging several measurements when calculating the deviation element, an efficient correction is possible even with wide variation in the process 	
<p>Computed tomography (Option)</p> <p>WinWerth® VolumeCheck</p>	<p>WinWerth® VolumeCheck with extended functionality</p> <p>CAD models, voxel volumes, measuring point clouds, color-coded deviations, geometrical characteristics and sections can be superimposed in the same coordinate system with the 3D CAD module of the WinWerth® measuring software and displayed, so that they can be analyzed from all sides.</p> <ul style="list-style-type: none"> • The display can now be clipped using arbitrarily definable clipping planes <ul style="list-style-type: none"> ○ The entire workpiece can be eroded, plane by plane, and visually checked for voids • Clipping planes can be used to check the material, internal geometry, and individual components of multi-material workpieces. Clipping planes and sectional planes for inspection can be moved and rotated in three dimensions using the mouse. • Mouse clicks on the voxel volume now generate 3D surface points for alignment • Using the histogram function and a transfer curve, the transparency, the contrast and the color can be varied for selected greyscale ranges <ul style="list-style-type: none"> ○ The transfer curve can be defined once for the sample part and then saved for series measurements • The conversion and visualization under poor contrast conditions have also been improved 	

<p>Computed tomography (Option)</p>	<p>Sparkovers in OnTheFly mode</p> <p>In order to avoid an interruption of a tomography measurement in OnTheFly mode caused by a sparkover, a routine has been integrated that automatically continues the tomography after the sparkover.</p>	
<p>Computed tomography (Option)</p>	<p>Hemisphere Y-raster tomography</p> <p>The new function hemisphere Y-rastering combines the two processes hemisphere CT and Y-rastering in an optimal way.</p> <ul style="list-style-type: none"> • By using the hemisphere Y-rastering, a doubling of the measurable workpiece diameter compared to the standard hemisphere CT is possible • The new function allows the measurement of workpiece diameters up to 700 mm (depending on the machine type) • In addition, the measuring time is reduced by about a factor of 2 compared to conventional Y-rastering 	

Notes



Notes



Version Information WinWerth® 8.43 / 9.43

New Features



Werth Messtechnik GmbH

Siemensstrasse 19 · 35394 Giessen

Phone: +49 641 7938-0 · Telefax: +49 641 7938-719

mail@werth.de · www.werth.de